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# Writing documents in the TU/e style using $\text{\LaTeX}$

User manual for writing letters, faxes, reports,  
presentations and posters

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# 1 Installation and documentation

The  $\text{\LaTeX}$  implementation of the TU/e house style is part of the TU/e MiKTeX installation since March 2009. You can obtain a recent MiKTeX installation:

- by getting an installation DVD from Jan de Jong (HG 8.86) or Wil Kortsmit (HG 9.87)
- by starting the installation from the following network drive: `\\webmath1\miktex28\` (Note that `miktex28` might be replaced by newer versions in the future. Please check `\\webmath1\` to see which MiKTeX installation is the most recent.)

The TU/e MiKTeX installation makes it possible to upgrade an existing MiKTeX installation. The source code of all examples can be accessed by clicking on the Start button, going to the MiKTeX <version> program group, and opening the Documentation folder. Both the source code of several examples, and user manuals (like this one) can be found there.

General, non- $\text{\LaTeX}$ -related information about the TU/e house style, can be found on the CEC website:

<http://www.tue.nl/cec>

On this website you can also find a plug-in for MS-Office to create documents in the TU/e style.

## 2 TU/e colours

All of the  $\text{\LaTeX}$  packages define a set of colours that are part of the TU/e palette. They are all listed below:

 tuewarmred	 tuecyan	 tuered	 tuepms300
 tuepms226	 tuepms253	 tuedarkblue	 tueorange
 tueyellow	 tuepms396	 tuelightgreen	 tuegreen
 tuepms3135			

## 3 Creating a letter

### 3.1 Introduction

The `tueletter2008` document class has been written for letters in the TU/e style. A sample letter is shown in Figure 3.1. If you are using standard, preprinted TU/e letter paper, then you do not want to have the TU/e logo, the red axes and “Where innovation starts” printed. But if you plan on printing the letter on ordinary paper, or send it in PDF format by email, then you might want to have them printed. In this case you can use the `tuelogo` option in the document class, but this is explained in more detail below.

### 3.2 A sample letter

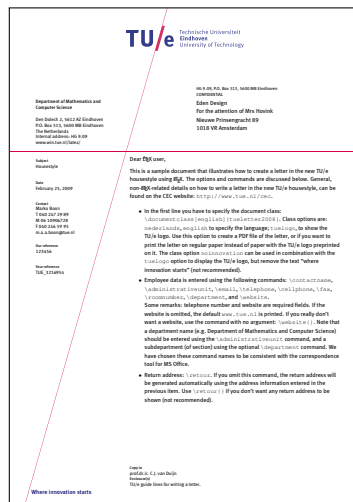


Figure 3.1: a sample letter in the TU/e style, created with  $\text{\LaTeX}$ .

### 3.3 Instructions

- In the first line you have to specify the document class:

```
\documentclass[english]{tueletter2008}.
```

Class options are: `nederlands`, `english` to specify the language; `tuelogo`, to show the TU/e logo. Use this option to create a PDF file of the letter, or if you want to print the letter on regular paper instead of paper with the TU/e logo preprinted on it. The class option `noinnovation` can be used in combination with the `tuelogo` option to display the TU/e logo, but remove the text “where innovation starts” (not recommended).

- Employee data is entered using the following commands:

```
\contactname
\administrativeunit
\email
\telephone
\cellphone
\fax
\roomnumber
\department
\website
```

Some remarks: telephone number and website are required fields. If the website is omitted, the default `www.tue.nl` is printed. If you really don't want a website, use the command with no argument: `\website{}`. Note that a department name (e.g. Department of Mathematics and Computer Science) should be entered using the `\administrativeunit` command, and a subdepartment (of section) using the optional `\department` command. We have chosen these command names to be consistent with the correspondence tool for MS Office.

- Return address: `\retour`. If you omit this command, the return address will be generated automatically using the address information entered in the previous item. Use `\retour{}` if you don't want any return address to be shown (not recommended).
- Letter specific commands: `\classification`, `\subject`, `\date`, `\ourreference`, `\yourreference`.

Some remarks: all of these commands are optional, except for the `\date` command. The classification will be capitalised automatically. You can enter anything you want, but the “official” classifications are Registered, Registered with proof of delivery, Personal, Confidential and Strictly confidential. If you omit the `\date` command, today's date will be inserted automatically.

- Provide the name that you want below the closing using the (optional) `\signature` command. It will automatically insert some vertical space.
- You can use the (optional) `\cc` and `\encl` commands to specify the Copy to, and Enclosure(s). Be sure to specify them **before** starting the `letter` environment (see next item).
- The actual body of the letter is created using a `letter` environment. This environment has one argument, namely the address data. It is recommended to use the

`\raggedright` command immediately after starting the letter environment to make sure that the text will not be justified, but this is of course a matter of taste. Inside the letter environment, use the `\opening` command to specify the opening (usually “dear ...”).

- Before ending the letter environment, specify the closing (usually “With kind regards,”) using the `\closing` command.

The source code of a sample letter can be found in the following folder on your hard disk (if you installed the latest TU/e MiKTeX).

Windows XP:

```
C:\Documents and Settings\All Users\Application Data\  
MiKTeX\2.9\examples\tue2008\sampleletter.tex
```

Windows Vista and Windows 7:

```
C:\ProgramData\MiKTeX\2.9\examples\tue2008\sampleletter.tex
```



## 4 Creating a fax

### 4.1 Introduction

Creating a fax is very similar to creating a letter. There is no `tuelogo` option because the TU/e logo is always printed on faxes because they are not intended to be printed on TU/e paper. A sample fax is shown in Figure 4.1.

### 4.2 A sample fax

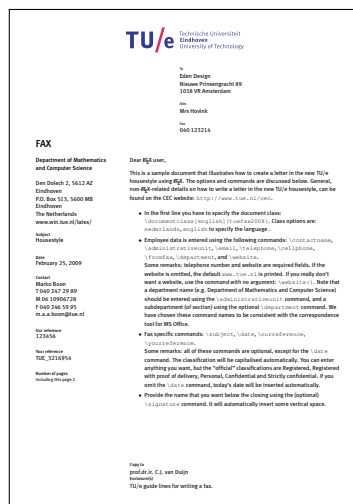


Figure 4.1: a sample fax in the TU/e style, created with  $\text{\LaTeX}$ .

### 4.3 Instructions

- In the first line you have to specify the document class:  
`\documentclass[english]{tuefax2008}`.  
 Class options are: `nederlands`, `english` to specify the language .

- Employee data is entered using the following commands:

```
\contactname
\administrativeunit
\email
\telephone
\cellphone
\fromfax
\department\website
```

Some remarks: telephone number and website are required fields. If the website is omitted, the default `www.tue.nl` is printed. If you really don't want a website, use the command with no argument: `\website{}`. Note that a department name (e.g. Department of Mathematics and Computer Science) should be entered using the `\administrativeunit` command, and a subdepartment (of section) using the optional `\department` command. We have chosen these command names to be consistent with the correspondence tool for MS Office.

- Fax specific commands: `\subject`, `\date`, `\ourreference`, `\yourreference`.  
Some remarks: all of these commands are optional, except for the `\date` command. The classification will be capitalised automatically. You can enter anything you want, but the “official” classifications are Registered, Registered with proof of delivery, Personal, Confidential and Strictly confidential. If you omit the `\date` command, today's date will be inserted automatically.
- Provide the name that you want below the closing using the (optional) `\signature` command. It will automatically insert some vertical space.
- Before specifying the address, use the `\attn` and `\tofax` commands to specify the person and fax number to which the fax is addressed.
- The actual body of the fax is created using a `fax` environment. This environment has one argument, namely the address data. It is recommended to use the `\raggedright` command immediately after starting the fax environment to make sure that the text will not be justified, but this is of course a matter of taste. Inside the letter environment, use the `\opening` command to specify the opening (usually “dear ...”).
- Before ending the fax environment, specify the closing (usually “With kind regards,”) using the `\closing` command. You can use the optional `\cc` and `\encl` commands to specify the Copy to, and Enclosure(s).

The source code of this document can be found in the following folder on your hard disk.

Windows XP:

```
C:\Documents and Settings\All Users\Application Data\
    MiKTeX\2.9\examples\tue2008\samplefax.tex
```

Windows Vista:

```
C:\ProgramData\MiKTeX\2.9\examples\tue2008\samplefax.tex
```

## 5 Creating a report

Unlike the `tueletter2008` and `tuefax2008` document classes, a TU/e report is created by importing a package: `tuereport2008`. However, note that this package is only compatible with the standard  $\text{\LaTeX}$  class `report`. The `tuereport2008` package seems to be compatible with the  $\text{\LaTeX}$  class `book`, but this has not been extensively tested and since so many commands get redefined, there is not much left of the original  $\text{\LaTeX}$  `book` class definitions.

### 5.1 Basic usage

The following code creates a TU/e report in  $\text{\LaTeX}$ :

```
\documentclass[a4paper]{report}
\usepackage[english]{babel}
\usepackage[english]{tuereport2008}

\title{...}
\subtitle{...}
\author{...}
\date{...}
\version{...}
\orderissuer{...}
\copyholder{...}
\administrativeunit{...}
\department{...}
\website{...}
\reference{...}
```

Some explanation about the code above:

- the first line loads the standard  $\text{\LaTeX}$  class `report`. Do not forget to use the `a4paper` option, otherwise elements will be wrongly positioned!
- the second line loads the standard  $\text{\LaTeX}$  package `babel` which specifies the document language. Use the option `dutch` for Dutch documents. For documents containing both Dutch and English text, use

```
\usepackage[dutch,english]{babel}
```

The last language is the default one. You can switch languages in the middle of the document using the `\selectlanguage{...}` command.

- The third line loads the `tuereport2008` package. Options that you can specify, are:
    - dutch** sets the Dutch language.
    - english** sets the English language. You should always specify the language, even if you specified it in the `babel` package!
    - notuelogo** does not draw the TU/e logo, the axes and “Where innovation starts”. Use this, if you plan on printing the first page(s) on official TU/e paper.
    - noinnovation** does not print the “Where innovation starts” text, but does draw the logo and the axes. This option is not recommended, because officially the “Where innovation starts” message should always be printed.
    - notuetoc** Prints a standard  $\LaTeX$  table of contents without axes, instead of the TU/e version.
    - notuechapters** Does not redefine the `\chapter` command, so the appearance of new chapters is how it is standard in  $\LaTeX$ .
  - The following lines specify the title, subtitle, author, date, etc.. All of them are optional, except for the title and the author. Note that if you omit the date, today’s date will be inserted. Use `\date{}` to omit the date completely. The same holds for the website. If you omit it, the standard website `www.tue.nl` will be inserted. Use `\website{}` if you don’t want any website to be printed.
- Another remark: note that for most departments, you should specify the department name using the `\administrativeunit{}` command! The `\department` command can be used to enter a group, section, research area etc..

## 5.2 Some additional remarks

The TU/e report style uses the `fancyhdr` package to redefine headers and footers. If you don’t like the TU/e headers and want to redefine them yourself, you have to do this by renewing the `\setheaders` command. The following example produces more standard  $\LaTeX$ -like headers:

```
\renewcommand{\setheaders}{
\pagestyle{fancy}
\fancyhf{}
\fancyhead[LE]{\sffamily\leftmark}
\fancyhead[RO]{\sffamily\rightmark}
\fancyfoot[C]{\thepage}
\renewcommand{\headrulewidth}{0.1pt}
}
\setheaders{}
```

The source code of a sample report (this one!) can be found in the following folder on your hard disk (if you installed the latest TU/e MiKTeX).

Windows XP:

```
C:\Documents and Settings\All Users\Application Data\  
  MiKTeX\2.9\examples\tue2008\samplereport.tex
```

Windows Vista:

```
C:\ProgramData\MiKTeX\2.9\examples\tue2008\samplereport.tex
```

## 6 Creating a book

Actually there is no book equivalent to `tuereport2008`. Nevertheless, this package seems to be compatible with the standard  $\text{\LaTeX}$  document class `book`, but so many commands get overridden that some of the original, typical book properties are lost. It is possible to specify options when loading the `tuereport2008` package that disable some of the typical TU/e layout. So if you want to write a book and want it to have some TU/e style resemblance, you could use the following code (or parts of it):

```
\documentclass[11pt,a4paper,twoside]{book}
\usepackage[english]{babel}
\usepackage[english,notuechapters,notuetoc]{tuereport2008}
\renewcommand{\setheaders}{
\pagestyle{fancy}
\fancyhf{}
\fancyhead[LE]{\sffamily\leftmark}
\fancyhead[RO]{\sffamily\rightmark}
\fancyfoot[C]{\thepage}
\renewcommand{\headrulewidth}{0.1pt}
}
\setheaders{}
```

## 7 Creating a presentation

### 7.1 Introduction

There are two ways to create a presentation in the TU/e house style. The first one, is by using the `tuepdfscreen2008` package, which is based on the package `pdfscreen` that can be used to create presentations. The second way, is by using the `beamer` document class combined with the `tuebeamer2008` beamer theme. The opinion of the author is that `tuepdfscreen2008` is easier to use and is less likely to produce “unexpected” output because hardly any standard  $\text{\LaTeX}$  commands are overridden. But nowadays the `beamer` package has become the standard for making presentations and for `beamer` users it might be much more convenient to keep on using the `beamer` document class combined with the `tuebeamer2008` theme. The resulting presentations should look, more or less, the same.

### 7.2 Appearance of the presentation

Just like the Powerpoint counterparts, both `tuepdfscreen2008` and `tuebeamer2008` have two layouts: one for “long texts” (most common for scientific presentations) and one for “short texts” which is more common for “popular” presentations. Figure 7.1 shows a presentation in both layouts. Five different theme colours can be used for the presentation: **red**, **cyan**, **orange**, **green**, or **blue**. Red is the default.

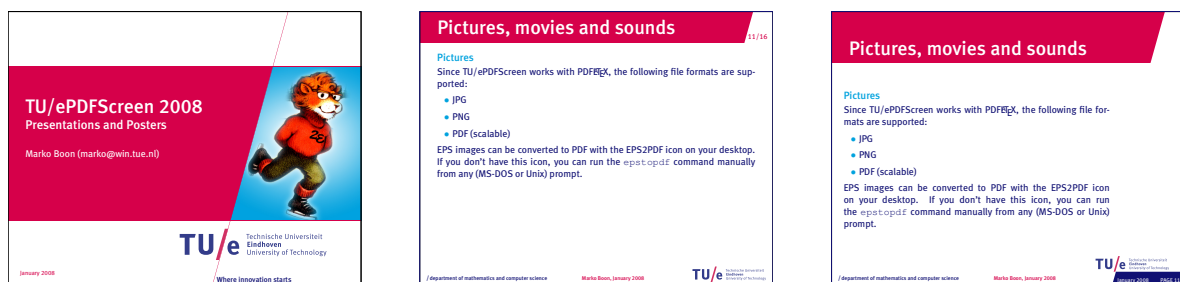


Figure 7.1: a sample presentation in the TU/e style. The first two pictures show a title slide and a regular slide in the “long texts” layout, the last picture uses the “popular” layout.

## 7.3 Instructions for tuepdfscreen2008

### 7.3.1 How to start

It is very important to know that slides created with the `tuepdfscreen2008` package are supposed to be created using PDF $\LaTeX$ , **not** plain  $\LaTeX$ ! The beginning of a document will more or less look like this:

```
\documentclass[a4paper]{article}
\usepackage[winuk,themeblue]{tuepdfscreen2008}
\usepackage[english]{babel}
\title{...}
\author{...}
\date{...}
\titlelogo{...}
\titlebackgroundimage{...}
\setstatustext{...}

\begin{document}

\begin{titleslide}
\end{titleslide}
```

Note that the `article` class is used with the `a4paper` option (which is of course ignored for on-screen presentations, but it is used for handouts). The second line loads the `tuepdfscreen2008` package. The following package options can be specified:

**winuk** sets the department name to Department of Mathematics and Computer Science (English). Use this to specify your department name. Alternatives are: `ele`, `eleuk`, `bmt`, `bmtuk`, `bwk`, `bwkuk`, `id`, `iduk`, `chem`, `chemuk`, `tm`, `tmuk`, `phys`, `physuk`, `win`, `winuk`, `wtb`, `wtbuk`. The “uk” at the end means English version.

**themeblue** sets the blue theme. Alternatives are: `themered`, `themecyan`, `themeorange`, and `themegreen`.

**official** uses the popular layout instead of the scientific one.

**noinnovation** does not display the “Where innovation starts” text on the title slide.

**handouts2** creates an A4 document with two slides printed on one page. Use this option for the creation of handouts. Alternatives are: `handouts3`, `handouts4`, `handouts6`, and `handouts8`.

**largefonts** uses larger fonts than usual. You can even specify the option `hugefonts`.

Of course you are free to load other packages, but the `babel` package is always recommended to specify the document language. Use the `\title`, `\author` and (optionally) the `\date` command to specify the title, author, and date. Note that you do **not** have to use the



`\maketitle` command later, because this will be invoked automatically in the `titleslide` environment.

The optional command `titlelogo` takes a graphics image file name as parameter (since you have to use PDF $\text{\LaTeX}$ , PDF, PNG and JPG are supported formats) and is used to place a company logo on the slide. Example: `\titlelogo{philipslogo.jpg}`.

The optional command `\titlebackgroundimage` also takes a graphics image file name as parameter and produces a large image on the title slide (like the  $\text{\TeX}$  lion on the title slide in Figure 7.1). Again, supported formats are PDF, PNG and JPG. The image is scaled automatically, but the best result is obtained if the width of the image is about 85% of the height.

The optional command `\setstatustext` sets the status bar text (in the bottom of the slide) for all pages except the title page.

If you want to specify your own department text, you should not use any of the `winuk`, ... options but specify your own text using the following command:

```
\renewcommand{\dept}{Communicatie Expertise Centrum}
```

If you want to specify something other than text, e.g. a logo, you need the `\protect` command:

```
\renewcommand{\dept}{
  \protect \includegraphics[height=1cm]{philipslogo.jpg}}
```

### 7.3.2 Creating slides

Sample code:

```
\begin{titleslide}
\end{titleslide}

\begin{slide}
\tableofcontents
\end{slide}

\begin{slidetop}
\slidetitletoc{Introduction}

...
\end{slidetop}
```

As shown in the previous section, the title slide is created using the following commands: which should be put right behind the `\begin{document}` command. There is no need to use the `\maketitle` command.

Regular slides are created using the `slide` or `slidetop` environment. The only difference is the vertical alignment, which is respectively centred and top-aligned. Use the `\slidetitle`

command to specify a slide header (placed in the coloured bar on the top of the page). If you use the `\slidetitletoc` command, the title will be added to the table of contents, which can still be created inside a slide using the usual `\tableofcontents` command. If you want your slide titles numbered, you should use the `\slidetitlesection` command.

### 7.3.3 Movies and sounds

It is possible to add movies to your TU/ePDFScreen presentation. Please note that the appropriate player has to be installed on the computer that will show the presentation. Usually Windows Media Player (for AVI) or QuickTime (for MOV) have to be installed.

```
\movie{width}{height}{filename}
```

Some remarks:

- currently only AVI and MOV files are supported.
- the movie will not be embedded in the PDF file, so don't forget to distribute it with your presentation!
- you can use this command to embed sounds in your presentation.

### 7.3.4 Revealing slides in multiple steps

It is possible to reveal a slide in multiple steps. Just put a `\pause` command whenever you want a break. After running PDF $\text{\LaTeX}$  you still will not notice anything in the resulting PDF file. You have to run a post-processor called *AddPause*, which is located in your MiKTeX Start Menu. This program will bring up an Open File dialog so you can select your PDF file. AddPause will add the breaks and generate another PDF file without the break effects (which you can use for handouts).

AddPause uses PPower4, a Java program written by Klaus Guntermann. This means that you need Java, which can be downloaded from [java.com](http://java.com).

## 7.4 Instructions for tuebeamer2008

### 7.4.1 How to start

```
\documentclass[t]{beamer}
\usetheme[department=winuk,theme=blue]{tue2008}
```

The first line should specify the document class `beamer`. The `[t]` option is common for this document class and specifies that vertical alignment of slides is top-aligned instead of centered.

The second line loads the `tue2008` theme for beamer. Theme options are `key=value` pairs that specify the appearance:

**official** when set to true, the current style is replaced by a style that is more suitable for non-scientific presentations.

**department** sets the department name that will be printed in the footer of each slide. Valid values are: `ele`, `win`, `bmt`, `bwk`, `id`, `chem`, `tm`, `phys`, `wtb`. If you want the English department name, simply add `uk` to the value.

**theme** sets the main theme colour. Five supported colours are: red (default), blue, cyan, orange, green.

**titlebgimage** uses the specified image as background in the title slide.

**slidesperpage** sets the number of slides that will be printed on one page. This option is very useful for printing handouts. Valid values are 1, 2, 3, 4 and 6.

Example:

```
\usetheme[department=winuk,official=false,theme=blue,
           titlebgimage=texlion.jpg,innovation=true]{tue2008}
```

This sounds like a stupid remark, but all options are optional, so you don't have to provide them!

## 7.4.2 Creating slides

Creating slides is the same as for other presentations using the `beamer` class:

```
\begin{frame}
\frametitle{Title page}

...
\end{frame}
```

The only exception is the title slide, which is simply produced like this:

```
\begin{titleframe}
\end{titleframe}
```

## 7.4.3 More advanced topics

In this document we do not discuss more advanced topics, like including multimedia, revealing slides in multiple steps, changing the background image. The advantage of having a TU/e theme in beamer is that all standard beamer rules and commands are not overridden. You can find more information in the beamer user manual, which can be found in the following way:

- go to the MiKTeX group in your start menu

- go to the Documentation folder
- start the program LaTeX Packages Help
- select `beamer` and press OK
- in the web page that is opened, open the link to the beamer user guide.

More information can also be found in the `tuebeamer2008` example. You can find this example in the Documentation folder of the MiKTeX group in your start menu.

## 8 Posters

Creating a poster involves using the package `tuepdfscreen2008`, which is also used for presentations. Creating a poster is not much different from creating a one-slide presentation. You only need to specify the `A4` option when loading the `tuepdfscreen2008` package. The `\slidetitle` command is used to specify the poster title, and -through an optional argument- the subtitle (or authors). Some sample code is printed below, the result is shown in Figure 8.1:

```
\documentclass[a4paper,11pt]{article}
\usepackage[a4,winuk,themeblue]{tuepdfscreen2008}
\usepackage[english]{babel}
\setstatustext{Stochastic Operations Research}
\titlelogo[height=2.8cm]{logo}

\begin{document}
\begin{slidetop}
\slidetitle[subtitle]{Title}
\begin{multicols}{2}
...
\end{multicols}
\end{slidetop}

\end{document}
```

Some remarks:

- the poster is scalable, so even though you specify the `a4paper` option, it can be printed on any paper (even A0).
- the same options apply to the `tuepdfscreen2008` as for presentations, although the handouts options do not make much sense. The `a4` option actually sets up the slide as a poster.
- as you can see in Figure 8.1, the status text is not placed in the bottom of the poster, but in the upper left corner.
- just as explained in Section 7.3, you can override the `\dept` command to get a different text in the blue bar at the bottom of the poster.

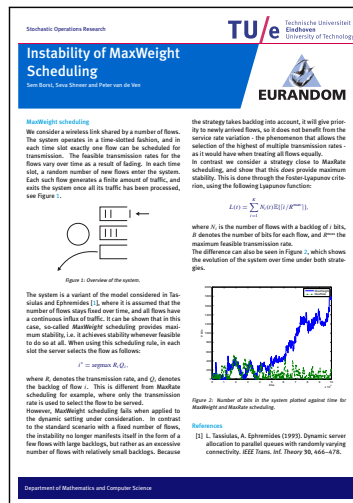


Figure 8.1: an example of a poster, created with tuepdfscreen2008.

- The `\titlelogo{...}` command creates a logo, on the right hand side of the title. Instead of the `\titlelogo` command, you can use the `\titleright{...}` command to insert text in the upper right part of the poster (or e.g. multiple logos):

```
\titleright{\textbf{Author} author contact information}
```

- the `\slidetitle` command can take an optional argument which will be used as subtitle.
- obviously the `multicols` command is only required if you want to create multiple columns in your poster.

## 9 General $\text{\LaTeX}$ tips

This chapter has nothing to do with the TU/e house style, but we want to take the opportunity to give some information on topics that might be useful to certain users.

### 9.1 Pictures in $\text{\LaTeX}$

#### 9.1.1 Supported formats

Although there are many outdated, obsolete packages for including images in  $\text{\LaTeX}$ , there is only one that you should use: `graphicx` (note the 'x!'). There are differences in supported file formats, depending on whether you use  $\text{\LaTeX}$  or  $\text{PDF}\text{\LaTeX}$ . This chapter helps you setup your document in such a way that both methods work. The following file formats are supported:

	EPS	PDF	JPG	GIF	PNG
$\text{\LaTeX}$	yes	no	yes*	no	yes*
$\text{PDF}\text{\LaTeX}$	no	yes	yes	no	yes

As you can see from this table, even JPG and PNG are supported. In  $\text{PDF}\text{\LaTeX}$  you don't have to use any special  $\text{\LaTeX}$  code, but in plain  $\text{\LaTeX}$  you should add some special option. This is discussed later in this document. Please note: only EPS and PDF are scalable. Use JPG and PNG for photographs only!

Many programs can generate EPS directly. You can use Corel Designer or Adobe Illustrator to export (almost?) everything to EPS format. We have a TU/e software license for both programs. We will discuss Corel Designer here.

Usage is simple: just Copy/Paste objects in Designer and export to EPS. Make sure that you uncheck the "include preview" option (first time only). Screenshots are shown in Figure 9.1.

#### 9.1.2 Including EPS or PDF files

Once you have an EPS picture (which is compatible with  $\text{\LaTeX}$ ) use EPS2PDF (shortcut on your Windows desktop and in the MiK $\text{\TeX}$  Start Menu group) to convert EPS to PDF (which is compatible with  $\text{PDF}\text{\LaTeX}$ ).

Including graphics:

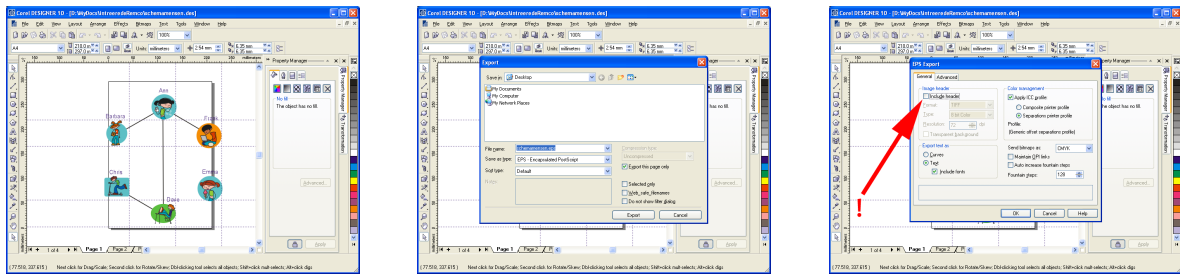


Figure 9.1: EPS export in Corel Designer.

- In preamble:

```
\usepackage{graphicx}
```

- Including the graphic file:

```
\includegraphics[width=0.7\linewidth]{filename}
```

Use the file name **without** extension!  $\text{\LaTeX}$  will take the EPS file,  $\text{PDF\LaTeX}$  will take the PDF file automatically.

### 9.1.3 Floating figures

Use a figure environment to create floating figures.  $\text{\LaTeX}$  will position the image on the place that you specify, or on the top of the next page if it doesn't fit on the current page anymore. In a figure environment you can use a caption to give a description of the figure, and a label to refer to the image. The following code can be used to include a picture `rsm.eps` or `rsm.pdf` which is located in a subdirectory called `images`.

```
\begin{figure}[!ht]
\begin{center}
\includegraphics[width=8cm]{images/rsm}
\caption{a response surface.}
\label{fig:surface}
\end{center}
\end{figure}
```

Now you can refer to the image:

See figure `\ref{fig:figure}`.

Please note:

The external figures will be embedded in the PostScript and PDF file, but not in the DVI file!



### 9.1.4 Including a JPG or PNG file

It is possible to include a JPG or PNG file (but no GIF) in a  $\LaTeX$  document. With PDF $\LaTeX$  it works automatically, but with  $\LaTeX$  you have to do some extra effort.  $\LaTeX$  is not able to determine the size of the graphics. So first you have to find out the dimension of your picture. In Windows this is very easy: just move your mouse over the file name and a tooltip will appear with its size. So suppose you have a picture of  $170 \times 257$  pixels. Then you can include it with the following code:

```
\includegraphics[width=2cm,bb=0 0 170 257]{foto.jpg}
```

Please note that this will also still work with PDF $\LaTeX$ .

Make sure that your picture has a resolution of 72dpi, which is standard for photographs made with most digital cameras. If your picture is not 72dpi, you can use a program like Adobe Photoshop (or any other professional photo editing software) to change the resolution. In Photoshop follow these steps:

- open the JPG image,
- select Image → Image Size,
- uncheck the Resample Image checkbox,
- change the resolution to 72dpi.

An alternative (probably easier) approach is to use a utility that is part of your MiKTeX installation:

- go to the MiKTeX 2.9 start menu group,
- start the utility “Convert JPG to 72 dpi”,
- select your picture,
- in the same directory as your original picture, a new picture is created called *original-name72.jpg* (where *originalname* should be replaced by the original file name obviously).

### 9.1.5 Graphics path

Many users prefer to store their image files in a separate directory. It is possible to define one graphics path (which might consist of multiple directories) using the `\graphicspath` command. Note that each directory in this path should be placed between curly brackets, even if there is only one directory. Directories can be relative or absolute. Example:

```
\graphicspath{{"D:/My Documents/final report/images/"},{images/}}
```

Note the double quotes that are required if you have spaces in your file path!

### 9.1.6 Inline floats

The package `wrapfig` makes it possible to place text next to floats:

```
\begin{wrapfigure}{placement}[overhang]{width}
\includegraphics[width=\linewidth]{image}
\end{wrapfigure}
```

**placement** horizontal placement: l (left) or r (right). For two-sided documents: i (inside edge) or o (outside edge).

**overhang** overhang of the float into the margin (default: 0pt).

**width** width of the figure or table (use `wraptable` for tables).

### 9.1.7 Two floats next to each other

#### No caption

```
\includegraphics[width=0.45\linewidth]{pic1}
\hfill
\includegraphics[width=0.45\linewidth]{pic2}
```

#### One caption

```
\begin{figure}[!ht]
\includegraphics[width=0.45\linewidth]{pic1}
\hfill
\includegraphics[width=0.45\linewidth]{pic2}
\caption{a response surface.}
\label{fig:surface}
\end{figure}
```

#### Two captions

Now we need the package `caption`. This package has very extensive functionality to change the appearance of captions. In this case we are only going to use the new command `\captionof`.

```
\parbox[t]{0.45\textwidth}{
  \includegraphics[width=\linewidth]{pic1}
  \captionof{figure}{the first figure}
}
\hfill
\parbox[t]{0.45\textwidth}{
```

```

\includegraphics[width=\linewidth]{pic2}
\captionof{figure}{the second figure}
}

```

For tables, just replace `figure` by `table`.

## Sub-captions

Now we need the package `subfig`:

```

\begin{figure}[!ht]
\begin{center}
\subfloat[First figure]{
  \includegraphics[width=0.45\textwidth]{pic1}
}
\subfloat[Second figure]{
  \includegraphics[width=0.45\textwidth]{pic2}
}
\caption{Two figures}
\end{center}
\end{figure}

```

### 9.1.8 WinEdt plug-in

WinEdt has a plug-in to include pictures easily:

Tools → Include Graphics

You can browse for a picture file. Note that the generated code might be improved a bit manually using suggestions from the previous sections.

## 9.2 Tables in $\text{\LaTeX}$

### 9.2.1 Automatic column widths

Two packages make it easy to create tables with multiple lines of text within one cell. Instead of having to specify the explicit column width using a `p{...}` type column, you can have the width calculated automatically.

The `tabularx` package defines a new column type `X` which is similar to `p`, but whose width will be computed automatically.

```

\begin{tabularx}{\textwidth}{|l|c|X|X|}
...
\end{tabularx}

```

The `tabulary` package defines four new column types: L, C, R, J (= Justified). The widths of these columns will be based on their content.

```
\begin{tabulary}{\textwidth}{|l|c|L|J|}
...
\end{tabulary}
```

### 9.2.2 WinEdt plug-in

WinEdt has a useful plug-in to generate code for a table:

Tools → Table designer

### 9.2.3 Convert an Excel sheet to $\text{\LaTeX}$

An Excel macro called Excel2LaTeX can convert any Excel table to  $\text{\LaTeX}$  code. Of course not all special features are supported, but lines inside a table and merged cells are supported. You can download the converter from:

<http://www.win.tue.nl/latex/Excel2LaTeX.xla>

The converter is written by Joachim Marder and Andrew Hawryluk and is freely available.

## 9.3 Including source code of programs

Although all source code in this report has been included in `verbatim` environments, there is a much better package to display source code because it includes syntax highlighting for a huge collection of programming languages. The package is called `listings`.

The package `listings` defines the following commands:

- `\lstlisting{...}` for inline programming statements. Usage is the same as the `\verb` command.
- `\begin{lstlisting} ... \end{lstlisting}` for multi-line listings. Usage is the same as the `verbatim` environment.
- `\lstinputlisting{filename}` imports a complete source file

Using the command `\lstset` you can customise the language and appearance of the listing:

```
\lstset{
  language=Java,
  basicstyle=\color{black}\ttfamily,
  commentstyle=\color{green}\itshape\ttfamily,
```

```
keywordstyle=\color{blue}\bfseries\ttfamily,  
showstringspaces=false,  
frame=single, % boxed listings  
backgroundcolor=\color{white}  
}
```

Supported languages: too many to mention. Included are Basic, C, C++, Delphi, Fortran, HTML, Java, Mathematica, Matlab, Pascal, Perl, PHP, SAS, SQL, TeX, VBScript, XML.

## 9.4 Using Reference Manager for bibliographies

The TU/e has a site license for the program Reference Manager. It can be installed from the TU/e Library Web Site. If you want to export citations from this program in the BiBTeX format, you should follow these steps:

- Mark all items that you want to export
- **Bibliography  $\implies$  Generate From Reference List**
- Output Style: click the Browse button
- Select BiBTeX.os
- Save as RTF file, which can be opened in Word and exported to plain text.